

1. INTRODUCTION.

During the last fifty years tremendous advances have been made, throughout the temperate regions of the world, in nearly all the main branches of animal nutrition research. Work by such men as Kellner, Armsby, Morrison and Woodman, has made it possible to feed practically all classes of stock in such a way that every pound of food fed can be used to economic advantage; whether it be in the production of milk, meat, wool or work. Standards have been worked out, using the figures from large numbers of controlled experiments, so that farmers now have reliable average guides as to the requirements of their animals for any particular function, and as to the actual values for production, for the very wide range of foods fed.

In the Tropics, on the other hand, animal nutrition research is still in its infancy. For lack of anything better, the standards of food requirements which have been proved reliable in the temperate regions are assumed to apply to tropical animals in tropical conditions, equally well. Whether this assumption is justifiable or not, still remains to be proved. Certainly, in the case of dairy cattle, it is by no means certain that European type cows living in Tropical conditions can make as efficient use of their food as they would in their natural environment.

As regards the values of the foods fed in a ration, we are not handicapped at all by lack of knowledge of the concentrate part of it, since the same concentrates are used as in the Temperate countries, and their values have been fully worked out. But it is when information is sought as to the value of the fodder part of the ration, that we realise how little is known. Work by Paterson on the culture, and by students of the College, on the digestibility, of some of the local Trinidad grasses and legumes, does provide us with useful indications of their value, but it also emphasises the tremendous need of a fodder crop in the Tropics which will fulfil the same functions as does Lucerne, in Temperate regions. The best of the Trinidad fodders, even when managed correctly and cut at the optimum time, fall very far short in food value and usefulness for a mixed farming cycle, when compared with those available outside the Tropics.

Fodder crops are usually fed to supply only the Maintenance part of a cow's ration, since their content of digestible nutrients is too low to provide anything for production. There are, however, in Temperate regions, notable exceptions to this rule ; young spring grass and good lucerne hay, for example, being able to supply the requirements for Maintenance and 3 or 4 gallons of milk, as well. Whether it is economic to use these fodder crops for production, depends upon the costs of labour involved and the relative cost and availability of imported concentrates.

In normal times concentrates are usually cheap and plentiful and it is therefore more economical to use them for the whole of the production part of the ration, and possibly some of the Maintenance as well. But in War time, when they become scarce and expensive, attention is immediately directed towards exploiting the food values of the home-grown crops, and it may well prove economic to reverse the situation completely, and replace the concentrates almost entirely ; providing there is a fodder available which can meet these requirements.

Trinidad is dependent, perhaps even more than Britain, upon imported supplies of food for both man and beast, and this is particularly so in the case of the dairy herds of the Island. Before the War, most of the commercial herds depended almost entirely upon imports of linseed, soya bean and cotton seed meals, and bran; the fodder crops grown locally being used merely to supply a portion of the necessary bulk in the ration. Very little attention was paid, either to the culture or the food value of these fodders, partly because milk could be easily produced at a profit by feeding concentrates, and partly because very little was known about the potentialities of tropical fodder crops.

But now that War has completely upset the normal economic situation and there have been periods, and are likely to be further periods when outside supplies of stock food are cut off, it is essential that the utmost use should be made of local resources. The Table published in T.A. Aug. 1942 (1), summarising the results of the digestibility trials carried out upon a range of local fodders, by past students of the College, shows that although there are none
(with

with anything like the same feeding value as lucerne hay or young spring grass, there are nevertheless, one or two which should theoretically provide a balanced ration, not only for maintenance, but also for an appreciable margin of production, as well. This could only be true with several provisos ; the crops would have to be correctly managed, they would need to be harvested at just the optimum stage of growth, and they would have to be fed in sufficient quantity. If it could be shown that these theoretical possibilities would work out successfully and economically in practice, then something of value to the dairy industry of the Island, would have been achieved.